

## Workshop Registration

Name:

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Employer:

\_\_\_\_\_

Work Address:

\_\_\_\_\_

City/State/Zip:

\_\_\_\_\_

Work Phone #:

\_\_\_\_\_

Work Email:

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Dietary Restrictions:

\_\_\_\_\_

**Registration Limited  
to First 50 Registrants!!**



Registration is FREE. Limited to 50 participants.

Please return the above information to the following contact person (via mail, phone or email):

Tamara Montgomery  
Illinois State Geological Survey  
615 E Peabody Dr.  
Champaign, IL 61820  
Phone: 217-333-5105  
E-mail: [montgomery@isgs.illinois.edu](mailto:montgomery@isgs.illinois.edu)

## Hotel Information

A block of rooms have been reserved for this conference at Residence Inn by Marriott at a rate of \$85 (+tax 12%)/night .

Complimentary hot breakfast buffet daily, free wifi, complimentary lite supper (M-Th; 6-7:30pm), indoor pool, exercise room, free passes to Anytime Fitness. *This hotel has a smoke free policy.*

### Residence Inn by Marriott

7542 Colosseum Drive

Rockford, IL 61107

Phone: 815-227-0013 Fax: 815-227-0013

[RockfordRISales@tharaldson.com](mailto:RockfordRISales@tharaldson.com)

Call or email your reservation, code does not work online.  
Group Name & Number: IL Height Modernization; G1022  
Room Reservation Deadline: Oct. 23rd, 2009

## Workshop Itinerary

7:30-8:10 Registration

8:15-9:45 Renee Shields—Update

9:45-10:15 Break

10:15-11:00 Chris Pearson—CORS and OPUS

11:00-11:45 William Henning—RTN

11:45-1:00 Lunch (buffet provided)

1:00-2:00 William Henning—NGS Guidelines

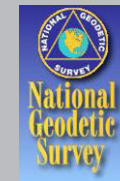
2:00-2:15 Break

2:15-4:00 Round Table Discussion

**The Illinois State Geological Survey  
and the  
Illinois Department of  
Transportation**

**Invites you to attend**

## **Great Lakes Region Height Modernization Consortium: Real Time Network (RTN) Workshop**



### **Presenters:**

**Renee Shields, William Henning,  
and Chris Pearson**

**November 10, 2009**

**Northern Illinois Conference Center  
at NIU Rockford  
8500 East State Street  
Rockford, IL**



Institute of Natural  
Resource Sustainability  
Illinois State Geological Survey

## Workshop Summary

This workshop focuses on real time positioning. The morning session will start with an update on the height modernization program by Renee Shields. After a break Chris Pearson, NGS advisor for Illinois will present a brief discussion about CORS and OPUS including an introduction to recent enhancements such as OPUS RS and OPUS DB. The rest of the morning and early afternoon will be taken up with real time networks by William Henning. Bill will discuss the various types of real time networks from single base through network solutions and the general principles by which they work. He will also introduce the new NGS guidelines for real time networks. After the break, there will be a round table discussion of the networks available in the region by vendors and representatives of state government.

This is an exciting time for surveyors, farmers, GIS administrators, engineers and all other professionals who depend on precise positions. While RTN networks have been available in the Midwest for several years, these networks are now expanding and evolving at an unprecedented rate. This workshop provides a unique opportunity to keep abreast of the evolution of RTN networks in our region. NOAA's National Geodetic Survey is currently implementing the National Height Modernization Program, an initiative to improve access to the height component of the NSRS.



◀ CORS installation in Bellevue Illinois.

Surveyor making a measurement. ▶

## Workshop Presenters

### Renee Shields

Ms. Shields is a geodesist in the Geodetic Services Division of the National Geodetic Survey (NGS). She received a bachelor's degree in Mathematics from the University of Massachusetts/Boston in 1976. Ms. Shields has been with NGS since 1980, and has experienced major involvement in the geodetic adjustments for the North American Datum of 1983, and integration of new Global Positioning System (GPS) projects into the National Spatial Reference System (NSRS). This included assisting in the development of the constrained adjustment guidelines, primary responsibility for the High Accuracy Reference Networks adjustments, and the state-wide readjustment of several states. She has extensive experience in GPS and Geoid Height analysis, and has successfully used this experience to develop and conduct workshops around the country on incorporation of data into the NSRS. Renee is currently Project Manager for the Height Modernization Program, an effort that has 17 states as regular participants and additional activities in a number of other states. She coordinates and manages the program, through outreach activities, education, and development of policies and guidelines, with the goal of establishing nationwide implementation of Height Modernization.



### Chris Pearson

Mr. Pearson works for the National Geodetic Survey where he is the geodetic advisor for Illinois. He lives in Springfield where he works with the Illinois Department of Transportation to maintain and improve geodetic control in Illinois. He was instrumental in establishing Illinois's Height Mod program. He gives numerous short courses and guest lectures in Illinois and surrounding states. He is also responsible for maintaining the model of crustal deformation that NGS uses to correct coordinates and survey data for tectonic motion in the western US. Chris has a PhD from the University of Otago in New Zealand where his PhD concerned the measurement of crustal deformation on the New Zealand plate boundary. He also has been a post doctoral researcher in Columbia University and the University of Otago working in crustal dynamics.

### William Henning

Mr. Henning is a Registered Professional Land Surveyor with over 41 years of active experience in all phases of surveying technology. He has helped plan, construct, process, adjust and manage height modernization geodetic networks for county-wide projects in the U.S. He has been actively involved with education/outreach to the geospatial community for almost 20 years, presenting over 60 talks and workshops on surveying and GNSS technology. He has 15 years experience working with various GNSS manufacturers' real time positioning systems. Mr. Henning is a Past President of the American Association for Geodetic Surveying (AAGS) and is an ACSM/AAGS Fellow. He is currently employed by NOAA's National Geodetic Survey (NGS) as a Senior Geodesist, where he is helping to develop guidelines and support methodology for real time positioning with state, national and international organizations.